What is claimed is:

1. An optical pickup apparatus for reproducing and/or recording information on an optical information recording medium, comprising:

a light source to emit a light flux with a wavelength in the range of 200 - 700 nm, the emitted light flux having a light intensity distribution in nearly Gaussian distribution;

a light intensity distribution converting element to transform the light intensity distribution of the light flux emitted by the light source into a desired light intensity distribution wherein a light intensity of an outgoing light passing through an outermost periphery of an effective aperture becomes 45 % - 95 % of a light intensity of an outgoing light passing through an optical axis position; and

an objective optical element to converge a light flux emitted by the light intensity distribution converting element onto an information recording surface on the optical information recording medium.

2. The optical pickup apparatus of claim 1, wherein the optical intensity distribution converting element transforms a light intensity distribution in nearly Gaussian

distribution of a light flux emitted by the light source into a desired light intensity distribution wherein a light intensity of an outgoing light passing through an outermost periphery of an effective aperture becomes 60 % - 80 % of a light intensity of an outgoing light passing through an optical axis position.

3. The optical pickup apparatus of claim 1, wherein the light intensity distribution converting element satisfies the following formula:

$1.2 < (C / D) / (B / A) < 1.5$

where A is a light intensity of an incident light around an outermost periphery of an effective aperture, B is a light intensity of an incident light on an optical axis position, C is a light intensity of an outgoing light around an outermost periphery of an effective aperture and D is a light intensity of an outgoing light on an optical axis position.

4. The optical pickup apparatus of claim 1, wherein the optical intensity distribution converting element is an element structuring a beam expander.

5. The optical pickup apparatus of claim 4, wherein one element structuring the beam expander is displaceable along an optical axis and has a spherical aberration correcting function.

6. The optical pickup apparatus of claim 4, wherein one element structuring the beam expander is fixed along an optical axis and has a spherical aberration correcting function.

7. The optical pickup apparatus of claim 4, wherein the beam expander is Keplerian type.

8. The optical pickup apparatus of claim 5, wherein the beam expander is Galilean type.

9. The optical pickup apparatus of claim 1, wherein the optical intensity distribution converting element is an element structuring a beam shaper.

10. The optical pickup apparatus of claim 1, wherein the light intensity distribution converting element is provided separately from the objective optical element.

11. The optical pickup apparatus of claim 1, wherein the light intensity distribution converting element is partially changeable a light intensity ratio of an outgoing light flux to an incident light flux.

12. The optical pickup apparatus of claim 1, wherein a collimating element for emitting an infinite light flux in the case that a finite light flux is introduced thereto is arranged between the light source and the light intensity distribution converting element.

13. The optical pickup apparatus of claim 1,wherein an optical functional surface of the objective optical element comprises an optical path difference providing ring-shaped structure which includes ring-shaped zones around the optical axis and is structured so that the ring-shaped zones provide pre-defined optical path differences to light fluxes passing through the each ring-shaped zone between light fluxes passing through neighboring zones.

14. The optical pickup apparatus of claim 13, wherein the optical path difference providing structure is one of a

diffractive structure, a phase structure and multi-level structure.

15. The optical pickup apparatus of claim 1, wherein the objective optical element has a numerical aperture NA of 0.65 and more.

16. The optical pickup apparatus of claim 1,the objective optical element is tilted to the optical axis so that a comatic aberration is corrected.

17. The optical pickup apparatus of claim 1, wherein the objective optical element is formed by a plastic material.

18. The optical pickup apparatus of claim 1, wherein the objective optical element is formed by a glass material.

19. The optical pickup apparatus of claim 1 further comprising a chromatic aberration correcting element.

20. The optical pickup apparatus of claim 1, which further comprises a plurality of light sources and conducts

information recording and/or reproducing on various optical information recording media.